

**SYSTEMS AND METHODS FOR THE REDUCTION OF PEAK TO AVERAGE
SIGNAL LEVELS OF MULTI-BEARER SINGLE-CARRIER AND MULTI-
CARRIER WAVEFORMS**

Abstract of the Disclosure

5 The present invention is related to methods and apparatus that can
advantageously reduce a peak to average signal level exhibited by single or by
multicarrier multibearer waveforms. Embodiments of the invention further
advantageously can manipulate the statistics of the waveform without expanding the
spectral bandwidth of the allocated channels. Embodiments of the invention can be
10 applied to either multiple carrier or single carrier systems to constrain an output signal
within predetermined peak to average bounds. Advantageously, the techniques can be
used to enhance the utilization of existing multicarrier RF transmitters, including those
found in third generation cellular base stations. However, the peak to average power
level managing techniques disclosed herein can apply to any band-limited
15 communication system and any type of modulation. The techniques can apply to
multiple signals and can apply to a wide variety of modulation schemes or combinations
thereof.

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